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(58) Field of search

B8C

B8P

(54) Packaging

(57) A dispensing pack comprises a stack of articles, such as nested cups 10, wrapped in a tearable sheet material 11 provided with tear strips 12 located so as to release the articles one at a time. The sheet material may be in the form of a heat-shrunk wrap, a stretch-wrap or a blister pack. A plurality of such packs may be disposed in a dispensing box 24 having a dispinuous aperture 27 at one end, monitoring window slots, and pressing and cutting members 25 spring urging the wrapped stacks towards the dispersing aperture. Each wrapper slack may be enclosed in an inner slotted carton 20. Figure 13 (not shown) discloses a chisel enclosed in a blister pack provided with a tearstrip in the blister.

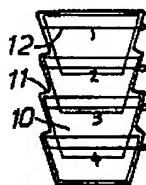


FIG. 1D

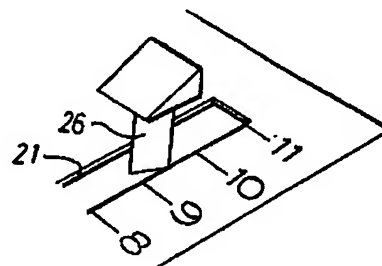


FIG. 11

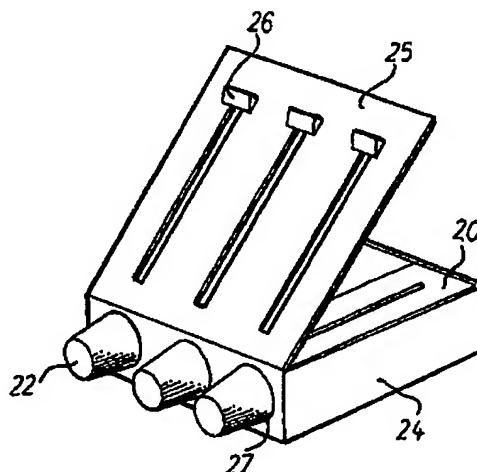


FIG. 10

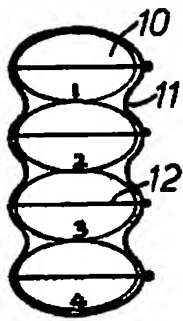


FIG 1A

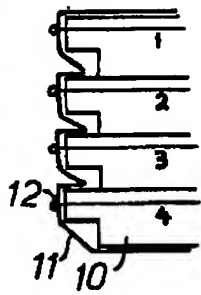


FIG 1A



FIG 1C

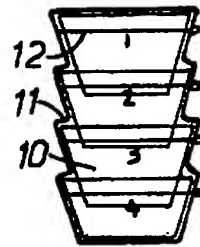


FIG 1D

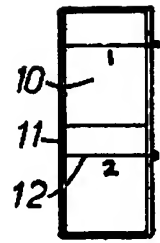


FIG 1E

FIG.2A

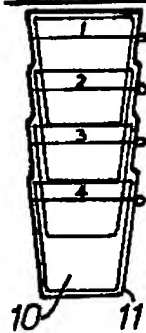


FIG.2B

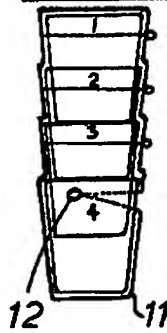


FIG.2C



FIG.2D

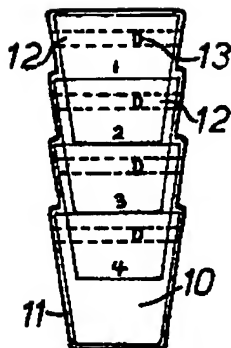
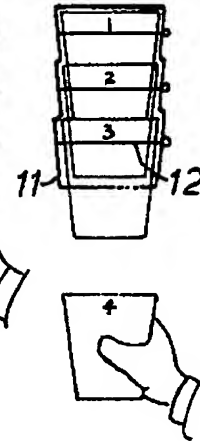


FIG.3

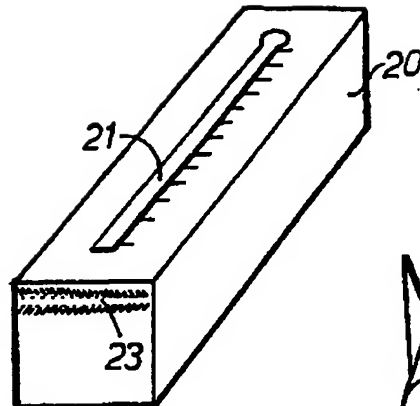


FIG.7

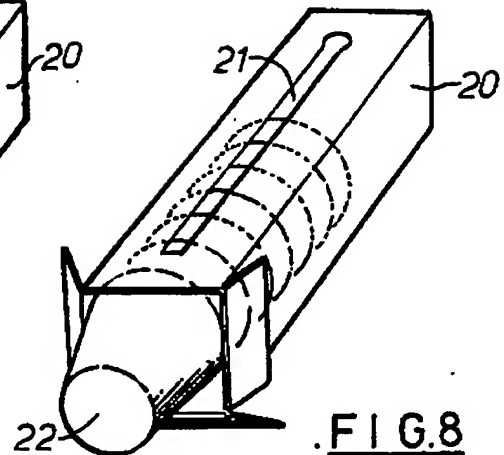


FIG.8

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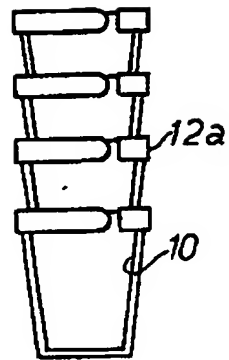


FIG. 4

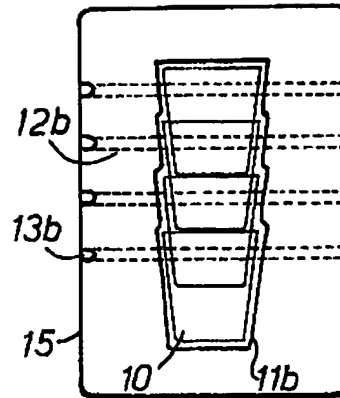


FIG. 5

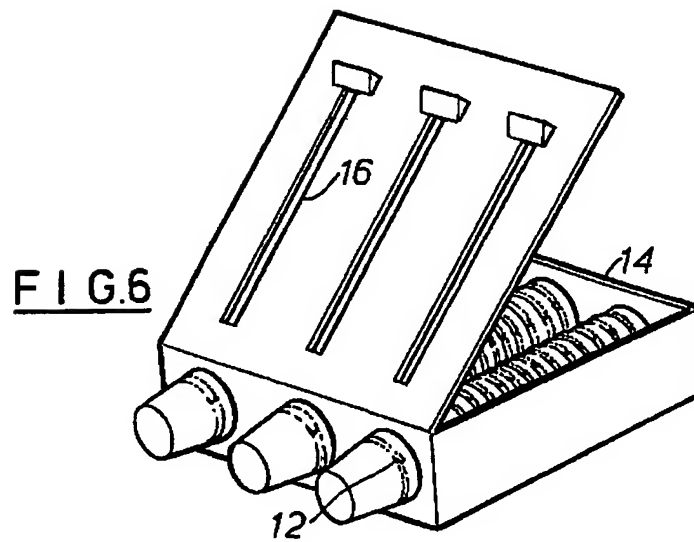


FIG. 6

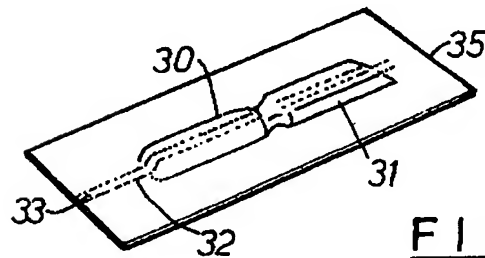


FIG. 13

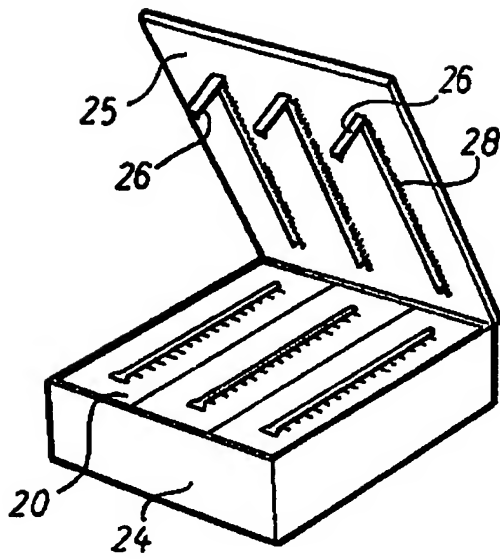


FIG. 9

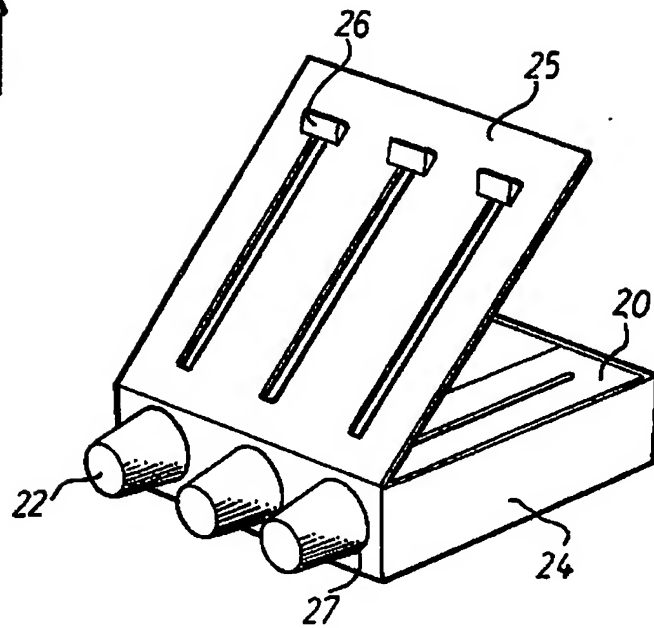


FIG. 10

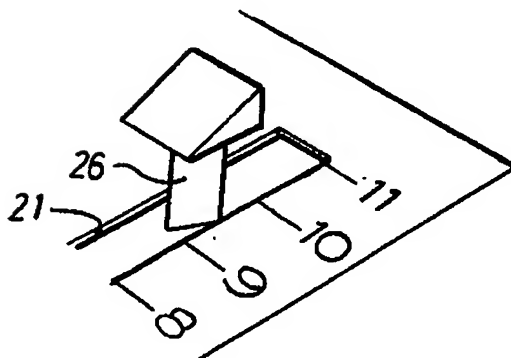


FIG. 11

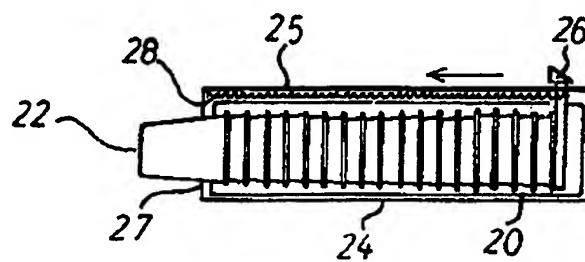


FIG. 12

SPECIFICATION

Packaging

5 The invention relates to packs or packages and is particularly concerned with a package or pack containing a plurality of articles and for individually dispensing said articles, for example articles such as the precharged disposable containers described in British Patent Specification 1603421.

According to one aspect of the present invention, there is provided a pack comprising a plurality of articles to be dispensed and a wrap comprising tearable sheet material closely encasing or enclosing the articles and provided with tear strip means for tearing portions of the sheet material to enable the articles to be individually dispensed from the pack.

The invention includes a method of forming a pack which comprises closely encasing or enclosing the articles with a wrap comprising a tearable sheet material, for example by shrinkwrapping or stretch-wrapping the sheet material about the articles, and previously or subsequently applying tear strips to the sheet material at locations to enable the sheet material to be torn to dispense the articles individually.

Preferably, the articles are stacked within the pack and, if the shape of the articles permits, they are nested one within another.

Preferably, the tear strip means comprises a plurality of tear strips arranged transversely of the direction in which the stack of articles extends, there being a tear strip corresponding to each article and arranged to tear off a portion of the sheet material to enable the corresponding article to be removed from the pack. Alternatively, a tear strip may be arranged to tear the sheet material spirally, diagonally or in the direction in which the stack extends and the tear is used to tear the sheet material in a series of tears each of which frees one article.

The tearable sheet material may be in plastics, metal foil, paper, board or laminated combinations thereof and the choice of material may be made in conjunction with production, transit and protection requirements. The material may be chosen to protect the article from physical or chemical damage or, to preserve the state of the contents, whether as a total or a contributory factor.

The tear strips may be formed in the sheet material by lines of perforations and a pull tab may be incorporated in or attached to each strip to facilitate tearing. However, tear strips separate from the sheet material may be provided and may be applied to the sheet material using various methods and materials, such as heat sealing, cold seal adhesive, ultrasonic welding, laser welding, fusion adhesive and nylon inlay. The tear strips may be designed to give protection or rigidity to the enclosed articles or to the package, for example the tear strip may be made from expanded polystyrene or other mouldable material to follow the contours of the article.

The invention may be applied to any articles with inwardly angled contours or sufficient surface

area to create a tension, friction or contact hold between the articles and the sheet material.

The invention also provides a method of packing, dispensing and accounting for pre-charged or pre-filled multiple units or other articles to be individually used or consumed. Such units may for example be pre-filled with liquids, including spirits, alcohol, etc., powders, pastes and solids.

Amongst the advantages of the pack of the invention are:

1. It counters tampering and pilfering.
2. It counters health risks, handling contamination, dust and protects drinking rims.
3. It aids accounting in the numbers of articles as regards sales of articles, bond and store controls and dispensing controls.
4. It counters moisture loss or gain or chemical changes in the articles or their contents, for example by providing an air tight pack.
5. It offers easy opening and dispensing, for example as an over-the-counter service.
6. It can offer protection and rigidity in transit, storage or display.

According to another aspect of the invention, a container or cassette, such as a carton, sleeve or tube for holding a stack of articles, can be provided with a slot or perforations running in the direction in which the stack extends, whereby the dispensing of the articles may be monitored. To protect the articles, the slot may be covered with a transparent or translucent sheet material which, for the purpose indicated below, may be tearable. The container may be provided with an openable and re-closable end through which the articles may be dispensed and may include a tear strip for opening the end. It may also include a folding end cover arrangement to create a dispensing device.

The container may serve as an inner container and may be fitted within an outer container, which may hold a plurality of the inner containers, the outer container being provided with a dispensing aperture corresponding to the openable end of each inner container. The aperture may be resilient so as normally to retain an article projecting partly out through it but to release it in response to a hand pull or twist (manual movement) on the article, whereby the article is dispensed or released.

A pressure member may be fitted to the outer container and project into the slot of the inner container so as to urge the stack of articles in the direction of the dispensing aperture and cause the article remote from the pressure member to project through the aperture. The pressure member may carry a cutter to slit the tearable sheet material with which the slot may be covered. The outer container may have a lid in which the pressure member is mounted. Where the outer container contains more than one inner container, there will be a pressure member corresponding to each inner container.

Alternatively, instead of the inner containers described above, the outer container may hold a plurality of the dispensing packs described above (each comprising a stack of articles enclosed in a wrap of tearable sheet material provided with tear

strip means), the pressure member urging the pack in the direction of the dispensing aperture and the protruding article is then released by the tear strip and a hand pull.

5 The invention will now be further described by way of example with reference to the accompanying drawings, in which:

Figures 1A to 1E illustrate dispensing packs comprising various shapes of article enclosed in a

10 wrap,

Figures 2A to 2D illustrate the sequence of dispensing an article from a pack,

Figure 3 illustrates a pack with a perforated tear strip,

15 *Figure 4* illustrates a pack with a protective tear strip,

Figure 5 illustrates a blisterpack,

Figure 6 is a perspective view of an outer container for several packs,

20 *Figures 7 and 8* are perspective views of an inner container for articles,

Figures 9 and 10 are perspective views of an outer container containing the inner containers of *Figures 7 and 8*,

25 *Figure 11* is a perspective detail of a pressure member and cutter also shown in *Figures 9 and 10*,

Figure 12 is a side elevation in section of the outer container of *Figures 9 and 10*, and

30 *Figure 13* is a perspective view of another blister-pack.

Figures 1A to 1E show various shapes of stacked articles 10 which may be enclosed in a wrap comprising tearable sheet material 11 provided with tear strips 12. In *Figures 1D*, the articles are nested, one within another. The numbers 1 to 4 on the sheet material are for identifying the articles for accounting purposes; the same applies in *Figures 2*

40 *Figures 2A to 2D* illustrate in sequence the dispensing of a cup from the bottom of a pack of stacked and nested cups shown in *Figure 2A* with the lower portion of the sheet material 11 being removed by the tear strip 12 in *Figure 2B*, with the bottom cup 10 ready for removal by hand in *Figure 2C* and with this cup completely removed in *Figure 2D*. The cups may be pre-filled and sealed. The nest of cups may be tightly enclosed in the sheet material by shrinkwrapping, stretchwrapping or other methods and the tension in the material holds the unreleased cups in position and continues to afford protection after the lowest cup has been dispensed. The tear strips may be applied prior to wrapping the cups in the material or afterwards.

In *Figure 3*, each tear strip 12 is formed by a double line of perforations made in the sheet material 11 and is provided with a pull tab 13 incorporated into or secured to the material so that pulling the tab removes a strip of the sheet material defined by the perforations. The tear strips may be formed after the initial tension wrapping of the cups in the sheet material. The perforations may be made with a pin head device and the pull tab

70 tached to the pin head device. If desired a printing head for numbering the sheet material may be provided adjacent to the cutter. These may be heated to minimise the pressure required in the sheet material if the material is receptive e.g. plastics or laminated paper. The pull tab can be index printed at the same time.

Figure 4 shows a pack of nested cups 10 in which the tear strips 12a encircle the rims of the cups and are made sufficiently broad and strong to protect the rims.

75 *Figure 5* shows a bubble or blister pack in accordance with the invention. In this embodiment, the wrap 11b which envelops the nested cups 10 or other articles does not completely surround the cups but is adhered to a backing card 15. Tear strips 12b in the wrap 11b may extend to the edge of the card 15. They may be formed by perforations and perforations can also be formed in the card. Pull tabs 13b can be formed at the ends of the tear strips by appropriately cut away pieces of the card.

Figure 6 shows three packs of the kind illustrated in *Figures 2A to 2D* disposed in a container or box 14 so that one end of each pack projects through a corresponding hole in a wall of the container. One tear strip 12 of each pack is revealed and, after the wrap has been torn, by using the revealed tear strip, the corresponding cup 10 can be removed. A light pull will bring out the next tear strip. Light springs (not shown) bias the packs outwardly but not sufficiently strongly to eject the packs from the container 14. Slits 16 in the lid of the container enable inspection of its contents for accounting purposes. The slits 16 may be protected by transparent foil. Pressure and cutter members 26 (*Figure 11*) may be slidably mounted to project into the container and engage the ends of the packs. The above-mentioned springs (not shown) can act on the members 26 and are conveniently tension springs supported in the lid.

The container 14 of *Figure 6* is intended for dispensing horizontally and this minimizes the possibility of the packs dropping out of the container.

110 Referring now to *Figures 7 to 12*, an inner container or carton 20 is provided with a punched slot 21 having a covering of a slittable transparent sheet material and numbered at the side to identify individual cups 22 inside the carton. The cups may be precharged and sealed. One end of the carton is provided with a tearstrip 23 (*Figure 7*) for opening the end of the carton to allow the end cup of the stack to project from the carton for dispensing purposes (*Figure 8*). Three such cartons are located in an outer container or box 24 (*Figures 9, 10 and 12*) having a lid 25 in which three pressure and cutter members 26 (see also *Figure 11*) are slidably mounted to project into the corresponding slots in the cartons when the lid is closed, thereby urging the cups towards the dispensing end of the carton and slitting the transparent cover as the cups are advanced. Corresponding to the cartons, the box is provided (*Figures 10 and 12*) with three dispensing apertures 27, each fitted with a dispensing cushion or retainer (which may be of rubber) the arrange-

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ment being such that a hand pull is needed to release or dispense the cup projecting from the aperture under the action of the pressure member, which is actuated by a spring 28 (Figures 9 and 5 12).

After dispensing cups, the cartons can be removed from the box and returned to storage as desired. The pressure member serves as a marker and in conjunction with the slot numbers gives a clear indication of the number of cups dispensed from or remaining in a carton. This also applies to the embodiment of Figure 6. Alternatively, the box containing the cartons can be returned intact. No repacking of the cartons is needed.

15 It will be observed that the box dispenses horizontally and this can provide a saving in space, for example in dispensing from airline bar trolleys on aircraft.

Figure 13 shows a blisterpack containing a single article 30 (a chisel in the illustration) which is sharp. Care is therefore required in opening the pack and, to this end, a tear strip 32 extends along the wrap 31 which is adhered at its peripheral portions to a board 35. A tab 33 is formed at the end 25 of the tear strip, as in Figure 5.

CLAIMS

1. A pack comprising a plurality of articles to be 30 dispensed and a wrap comprising tearable sheet material closely encasing or enclosing the articles and provided with tear strip means for tearing portions of the sheet material to enable the articles to be individually dispensed from the pack.

35 2. A pack as claimed in claim 1, in which the plurality of articles is a stack of articles.

3. A pack as claimed in claim 2, in which the articles are nested.

4. A pack as claimed in claim 2 or 3, in which 40 the tear strip means comprises a plurality of tear strips arranged transversely of the direction in which the stack of articles extends, there being a tear strip corresponding to each article and arranged to tear off a portion of the sheet material to 45 enable the corresponding article to be removed from the pack.

5. A pack as claimed in claim 2 or 3, in which the tear strip means comprises a tear strip arranged to tear the sheet material spirally, diagonally or in the direction in which the stack extends, the tear strip being arranged to tear the sheet material in a series of tears, each of which frees an article.

6. A pack as claimed in claim 2, 3, 4 or 5, in 55 which the tear strip is formed in the sheet material by lines of perforations and a pull tab is incorporated in or attached to each strip to facilitate tearing.

7. A pack as claimed in claim 2, 3, 4 or 5, in 60 which the sheet material is provided with separate tear strips applied to the sheet material.

8. A method of forming a pack as claimed in claim 1 which comprises closely encasing or enclosing a plurality of articles with a tearable sheet 65 material and previously or subsequently applying

tear strip means to the sheet material.

9. A method as claimed in claim 8 in which the plurality of articles is a stack of articles and the articles are encased or enclosed with the sheet material by shrinkwrapping. 70

10. A method as claimed in claim 8, in which the plurality of articles is a stack of articles and the articles are encased or enclosed with the sheet material by stretchwrapping. 75

11. A method as claimed in claim 8 in which the articles are encased or enclosed in a blister-pack.

12. A container or cassette for holding a stack of articles and provided with a slot or perforations running in the direction in which the stack extends, whereby the dispensing of the articles may be monitored. 80

13. A container as claimed in claim 12, in which the slot is covered with a transparent or translucent tearable sheet material. 85

14. A container as claimed in claim 12 or 13, and provided with an openable end through which the articles may be dispensed.

15. A container assembly comprising an outer container and a plurality of inner containers fitted within the outer container, each inner container being a container as claimed in claim 12, 13 or 14 and the outer container being provided with a dispensing aperture corresponding to the openable end of each inner container. 90 95

16. A container assembly as claimed in claim 15 and having pressure members fitted to the outer container and projecting respectively into the slots of the inner containers so as to urge the stack of articles in each inner container in the direction of the dispensing aperture and cause the article remote from the pressure member in each inner container to project through the aperture. 100

17. A container assembly as claimed in claim 16, in which, where the slot is covered as in claim 13, the pressure member carries a cutter to slit the tearable sheet material covering the slot. 105

18. A container assembly as claimed in claim 16 or 17 in which the outer container has a lid in which the pressure members are mounted. 110

19. A container assembly comprising an outer container and a plurality of packs as claimed in any one of claims 2 to 7, disposed within the outer container, the outer container being provided with a dispensing aperture corresponding to each pack and being further provided with pressure members respectively urging the pack of articles of each dispensing device in the direction of the dispensing aperture whereby articles may be withdrawn through the aperture. 115 120

20. A blisterpack comprising a sharp article, a base card, a wrap comprising tearable sheet material closely encasing or enclosing the sharp article and adhered to the card, and a tear strip at least in the sheet material. 125

21. A pack substantially as hereinbefore described with reference to and as illustrated in any of Figures 1 to 6 and 13 of the accompanying drawings. 130

22. A container substantially as hereinbefore

described with reference to and as illustrated in Figures 7 and 8 of the accompanying drawings.

23. A container assembly substantially as hereinbefore described with reference to and as illustrated in Figures 9 to 12 of the accompanying drawings.

24. A method of forming a pack substantially as herein described with reference to the accompanying drawings.